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AMERICAN GOLD AND SILVER PRODUCTION  
IN THE FIRST HALF OF THE SIXTEENTH  
CENTURY

SUMMARY

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I. INTRODUCTION

IN the Europe of the fourteenth and fifteenth centuries, the lack of precious metals to meet the requirements of an expanding mercantile activity came to be felt with increasing severity. The production of bullion

in the few mines worked in Euope was small and uncertain. A variety of circumstances, such as trade with Asia, the transforming of gold and silver into plate and jewels, and the accumulation of ecclesiastical treasure, had so far offset the output from the mines as probably to deplete the stock of money in circulation. It was the crying need of gold which fostered an increase of alchemy toward the end of the Middle Ages. It also prompted the voyages of Columbus and his companions; for one of the principal motives which led to the discovery of the New World was the conviction that by sailing westward might be found Marco Polo's golden land of Zipangu. The precious commodity was not obtained from Zipangu, but in the barbarian empires of Peru and Mexico. And from these distant regions, especially after 1545, a rich stream of precious metals flowed in ever larger quantities to the shores of Spain, and through Spain to the north of Europe. Some conception of the amount of bullion which crossed the seas in the first half-century after Columbus may contribute to an appreciation of the economic problems of that age.

Travellers and historians since Columbus' own time have exercised their imaginations upon the subject of American treasure. The extraordinary character of the remittances of gold, silver, pearls and emeralds gave contemporaries an exaggerated image of the revenues drawn by Spain from her new colonies. To many minds, apparently, they were the very foundation of Spain's political greatness. Early observers, it is true, were as a rule comparatively modest in their assertions; but in the seventeenth and eighteenth centuries Castilian fancy knew no bounds. Peter Martyr wrote in the second decade of the sixteenth century, before the conquests had extended to the mainland: "*Solo de la Española se trae a España todos los años la suma de*

400,000, y á veces de 500,000, ducados, se entiende que eso es, del quinto que viene para el Real Fisco, 80,000, 90,000 y 100,000 castellanos de oro, y á veces mas. . . ."<sup>1</sup> The Venetian ambassador, Gaspar Contarini, in a letter of November, 1525, estimates the income of the crown from the Indies at about 100,000 ducats a year.<sup>2</sup> Another Venetian, Nicolas Tiepolo, in 1533 remarked that the treasure from America in one year amounted to 150,000 ducats, in another to not more than 50,000. In 1548 Mocenigo gives the entire returns for the crown as about 350,000 ducats,<sup>3</sup> and three years later Marino Cavalli raises the figure to 400,000. In 1558 Michel Soriano, ambassador to Philip II at his accession, remembers that people spoke of "millions" of pesos; but in fact the king was receiving only between 400,000 and 500,000 ducats a year. Even in 1561 Andrea Badoero reckons the income from America at not more

<sup>1</sup> Decade III, lib. 8, cap. 3. Decade III was finished in October, 1516, and this chapter was probably written in that year.

The Spanish coins referred to in this paper are the maravedi, castellano, ducat, real, peso de minas and peso fuerte. The usual unit of calculation in Spain was the maravedi, represented in the sixteenth century by a billon coinage of the smallest value and one which was becoming progressively more debased. The castellano, the standard gold coin of Castile before 1497, was one-fiftieth of a marc of gold of a fineness of  $23\frac{1}{2}$  carats. As the Castilian marc weighed 230.0675 grams, the castellano contained 4.5534 grams of gold. Its legal value lay between 480 and 490 maravedis. It was superseded in 1497 by the ducat, in imitation of similar coins in Italy and Hungary. The ducat was of the same fineness as the castellano, but  $65\frac{1}{2}$  were minted from a marc of gold instead of 50. Its value was fixed at 375 maravedis, and it contained 3.485 grams of gold.

The common silver coin of Spain was the real, issued at a tale of 67 to the marc, and of a fineness of 67/72. As the legal value of a marc of silver after 1497 was 2.278 maravedis, the real was worth 34 maravedis.

The peso de minas was an imaginary unit of value employed in America before the establishment of royal mints. It represented, like the castellano, one-fiftieth of a marc of gold, but of a fineness of only about 22 carats, and its value was presumed to be 450 maravedis. It was equivalent, therefore, to about 4.18 grams of gold.

The peso fuerte was a silver coin of 272 maravedis or eight reals, minted in America after 1537. It became the famous Spanish dollar or "piece of eight" of trade, and in the sixteenth century contained 25.563 grams of silver. The final figures given in this paper are all expressed in pesos fuertes of eight reals.

See also the appendix to this article.

<sup>2</sup> Ranke, *Die Osmanen*, etc., 3d ed., 1857, p. 399. The actual income was very likely nearer 75,000 ducats.

<sup>3</sup> *Ibidem*. The receipts of the Casa de Contratacion in that year were little over 108,000 ducats. The annual average for the decade was 148,000 ducats.

than half a million. Finally, the Spanish historian Gómara wrote in 1552 that in the sixty years the Spaniards took to discover, conquer and explore the American continent, the gold and silver they won thereby was not to be reckoned. It passed sixty million ducats.

Among seventeenth century writers, we find estimates less restrained and judicial. It is true that in 1618 Luis Valle de la Cerda (*Desempeño del Patrimonio Real*, etc., cap. xv) calculates in round figures the amount of gold and silver received from America during the first hundred years at more than 500 millions for the king and private individuals;<sup>1</sup> an estimate which was probably not far from the reality. In 1626, however, Pedro Fernandez Navarrete (*Conservacion de Monarquias*, etc., Disc. xxi) computed the returns up to his time at 1,536 millions;<sup>2</sup> while the worthy Dr. Sancho de Moncada (*Restoracion Politica*, etc., 1619, Disc. iii, cap. i) in deploring the scarcity of money already noticeable in the peninsula, accepts the statement that the registered income from America for the sixteenth century alone had been two billion pesos.<sup>3</sup>

It would be fruitless to quote the figures of other and later Spanish publicists. Their estimates for the sixteenth century were generally based upon the word of writers who preceded them, men who possessed little real information, and whose methods were as uncritical as their own. The earliest attempt at a scholarly discussion of the problem we owe to the renowned German scientist and traveler, Alexander von Humboldt. In the first years of the nineteenth century, Humboldt

<sup>1</sup> Colmeiro, *Econ. Polit.*, vol. ii, p. 431, note 2. The unit referred to is probably the ducat.

<sup>2</sup> *Ibidem.* Navarrete was copied by Gil Gonzalez Davila (*Teatro de las Grandezas de la Villa de Madrid*, 1623, pp. 471-472); and later in the century probably by Solorzano Pereira (*De Indiarum Jure*, 1629-39, lib. v, cap. i), and by Nuñez de Castro (*Solo Madrid es Corte*, 1669, lib. i, cap. 13).

<sup>3</sup> *Ibidem.*

made his celebrated journey through Mexico and Spanish South America, and published the fruits of his observations in the *Essai Politique sur le Royaume de la Nouvelle Espagne*.<sup>1</sup> The importance of his researches concerning the gold and silver production of America up to 1800 need not be dwelt upon here. In the words of Adolf Soetbeer:

“ Humboldt's Schätzungen zeichnen sich dadurch vor allen früheren Aufstellungen aus, dass sie nicht in Bausch und Bogen den gesammten Export ohne Unterscheidung der einzelnen Produktionsländer und Perioden veranschlagen, sondern die wichtigeren Minendistrikte und die verschiedenen Perioden speziell untersuchen . . . Kapitel xi. des ‘ Essai Politique ’ . . . hat hiermit eine wissenschaftliche Statistik der Edelmetalle eröffnet. Nach dem Erscheinen dieser wahrhaft grundlegenden Abhandlung sind alle früheren Aufstellungen, ohne auch nur noch den Versuch einer Verteidigung zu finden, aufgegeben worden. Die Humboldt'schen Schätzungen erlangten eine so zu sagen klassische Autorität. Die hieraus entnommenen ziffermässigen Angaben über die zu Anfang dieses Jahrhunderts Statt gehabten Verhältnisse der Gold- und Silber-Gewinnung in Amerika so wie über den Gesamtbetrag des bis dahin aus Amerika überhaupt in den Verkehr gebrachten Edelmetalls, sind unzählige Male entweder genau wiederholt, oder mit nur unwesentlichen Änderungen in spätere statistische Vorlagen, welche die Edelmetalle betreffen, übergegangen.”<sup>2</sup>

In fact it was not until 1879, when Soetbeer, professor at the University of Göttingen, published his own still more thoro-going researches, that the conclusions of Humboldt were at all questioned. Humboldt confined his labors to the gold and silver production of the New World. Soetbeer extended his survey to include the eastern as well as the western hemisphere. He brought together all the scattered information of a trustworthy nature to be found in print, used Humboldt's sources and added others, employed a criticism

<sup>1</sup> 1st ed., Paris, 1811; 2d ed., 1827, referred to in this chapter.

<sup>2</sup> Soetbeer, Adolf, Edelmetall-Produktion und Werthverhältniss zwischen Gold und Silber seit der Entdeckung Amerikas bis zur Gegenwart. Gotha, 1879, p. 3.

more searching than his predecessor's, and produced what seemed to be, with some few possible corrections and additions, the final word upon the subject. So it was regarded by his contemporary, Lexis, who in the following year, 1880, suggested some emendations, and materially reduced a few of the American figures for the sixteenth century.<sup>1</sup>

Humboldt's table of the importation of gold and silver from America before the year 1600, is as follows: <sup>2</sup>

PERIOD	ANNUAL AVERAGE	HISTORICAL REMARKS
1492-1500	250,000 pesos	Discovery of the Antilles — gold-washings of Cibao — expedition of Alonso Niño to the coasts of Paria — voyage of Cabral — loss of Bobadilla's fleet.
1500-1545	3,000,000 “	Exploitation of Mexican mines: Tasco, Zultepeque, Pachuca; Peruvian mines: Porco, Carangas, Andacava, Oruro, Carabaya, La Paz — booty of Mexico, Caxamalca, Cuzco — conquest of New Granada.
1545-1600	11,000,000 “	Mines of Zacatecas and Guanajuato in Mexico — Cerro de Potosí in Peru — tranquil possession of Chili and interior of Mexico.

With it may be compared Soetbeer's conclusions for the entire production of precious metals in America in the sixteenth century:

PERIOD	ANNUAL AVERAGE
1493-1500 .....	485,000 pesos
1521-1544 .....	2,966,000 “
1545-1560 .....	12,945,000 “
1561-1580 .....	12,003,000 “
1581-1600 .....	17,284,000 “

The total production till 1600 he therefore reckoned at about 865 million pesos.<sup>3</sup> Lexis' figure for the same period is only 795 millions.<sup>4</sup>

<sup>1</sup> *Jahrbücher für Nationalökonomie und Statistik*, vol. xxxiv (1880), pp. 361 ff.

<sup>2</sup> *Essai Polit.*, vol. iii, p. 428.

<sup>3</sup> *Op. cit.*, pp. 107-108.

<sup>4</sup> *Op. cit.*, p. 402.

Since 1880 no one has attempted to review or improve upon the conclusions of these two German scholars. Their calculations have been accepted with the same degree of faith as were those of Humboldt before them. Indeed they had exhausted all the printed and readily accessible sources of information. The only other possible recourse would have been to materials in manuscript, and such materials, even if their existence was known, were far away and had never been examined.

The chief depository of Spanish colonial state papers is in southern Spain, in the city of Seville, — the Archivo de Indias. In it are preserved not only the records of the Casa de Contratacion, but also the original ledgers of the royal treasurers of the various colonies from the very first days of the exploration and conquest. In Seville may be seen the accounts for New Spain (Mexico), dating from September, 1521, only a month after the storming of the ancient Mexican capital. There are the ledgers of the treasurers of Peru from April, 1531, when the royal officials joined Pizarro at the seaport of Tumbez before the historic march to Caxamalca. And there too may be found the records — less complete, it is true, but just as instructive — of the treasurers of the realm of New Granada, of Guatemala, and of the West Indian islands.

From these documents one should be able to secure a juster idea, on the one hand of the quantities of gold and silver produced in the New World, and on the other of the extent of the revenues drawn by the Spanish crown from its American possessions. For the former we must depend upon what we can learn of the amount of the “quinto,” or one-fifth of all the produce of the mines, reserved to the crown (sometimes, in certain localities, a “diezmo,” or one-tenth); for the latter we have the official figures of the receipts from year to year, of the



Casa de Contratacion, from the foundation of that institution in 1503.

If the papers of the colonial treasurers were as full and carefully itemized for the earliest as they are for later years, we should possess a complete record of all the bullion brought to the royal assay offices to be registered, stamped, and taxed. There are, unfortunately, gaps and omissions in some of the most critical places. The financial papers of the Casa de Contratacion, on the contrary, have come down to us entire. The chief difficulty for the investigator is their voluminousness. The returns from the Indies were classified and detailed with scrupulous care. To analyze them completely so as to discover the time and place of each shipment, would require literally years of labor. Yet only in this way could be ascertained the proportionate amounts contributed to the royal treasury by each colony. I had to be content with figures representing the total yearly receipts, and with a careful examination of only the more important remittances. Even the data so secured enable one to substitute genuine and definite figures for the more or less capricious estimates based upon chance statements of contemporary chroniclers and travelers.<sup>1</sup>

## II. MEXICO

Mexico was the first of the great gold and silver regions of the American continent to be tapped by the Spaniards, and it remains in the twentieth century, as regards these commodities, the most productive of all

<sup>1</sup> It is in order here to mention a pamphlet published in 1904 by Señor F. de Laiglesia (Real Academia de la Historia): "Los Caudales de Indias en la primera mitad del siglo xvi." Laiglesia obtained his figures from the same records of the Casa de Contratacion to which I have referred. The inaccuracies in the pamphlet are so numerous that to attempt to enumerate them would be profitless. None of his figures or statements can be accepted without verification.

the countries of Spanish America. Notices of the wealth found there by the conquerors, as they appear in the letters of Cortez, and in the narrative of Bernal Diaz del Castillo, have been carefully collected and scrutinized by Humboldt and Soetbeer. According to Cortez' own testimony, the tribute required of Montezuma and his subjects after the entry of the Spaniards into the capital, and the enforced restraint of the Aztec chieftain, amounted to 162,000 pesos of gold and over 500 mares of silver.<sup>1</sup> The booty captured when the city fell the second time was little over 130,000 pesos, the rest of the plunder being in the form of slaves, embroidered cotton cloths, plumes, jewels, etc.<sup>2</sup> Bernal Diaz' figures are higher but less reliable. He puts the tribute of Montezuma at 600,000 pesos in gold, and the booty taken with the city at 380,000 pesos.<sup>3</sup> The treasure that survived the first rout of the Spaniards, and the royal share of the spoils gained in the final capture of the capital, together with private remittances from Cortez and his followers, were sent to Spain in three caravels in charge of Alonso de Avila and Antonio de Quinoñes; but the famous French corsair, Jean Florin, captured two of the vessels beyond the Azores and diverted the treasure to France.<sup>4</sup> The caravels carried, besides the unvalued jewels and objets d'art, 31,260 pesos in fine gold and 239 pesos baser gold for the

<sup>1</sup> Cortez' 2d letter, October 30, 1520; Gómara, lib. ii, cap. 46. Before the tribute was melted down, Cortez set aside as a special gift to the emperor, jewels, gold and silver vases, etc., of unusual workmanship, to the value of over 100,000 ducats. Bernal Diaz complains that at least two-thirds of such booty was reserved for the crown, the soldiers receiving only a paltry remainder.

<sup>2</sup> Cortez' 3d letter, May 15, 1522. His figures are corroborated by the accounts of the first royal treasurer, Julian de Alderete. The royal quinto of the cotton, cacao, slaves, and similar booty captured in the Conquest was valued at 9,440 pesos de oro. (A. de I., 4 — 1 — 1/19, ramo 1.)

<sup>3</sup> Hist. Verdadera, caps. 104 and 157.

<sup>4</sup> According to Gómara, Florin at the same time seized another vessel returning from the Indies with a cargo of 62,000 ducats in gold, 600 marcs of pearls and 2,000 arrobas of sugar.

king, and perhaps twice as much on the account of private individuals.<sup>1</sup> When the news of the loss reached Mexico, Cortez, partly to reimburse the emperor for this miscarriage, partly it may be as a thank offering for his appointment to the governorship of New Spain, hastened to gather all the gold and silver he could find for a second gift to his sovereign. In 1524, 60,000 pesos in gold, the product of the quinto, and a silver cannon weighing 2,450 pounds, were forwarded to Seville in the care of the treasurer, Diego de Soto.<sup>2</sup>

From the "Coleccion de documentos ineditos, etc." and from the Ternaux-Compans collection,<sup>3</sup> Soetbeer assembled what evidence he could find bearing upon the amount of precious metals in Mexico after the conquest. Both he and Lexis, however, base their estimates of the gold and silver production of the country in the first half-century upon a single table of figures published by Ternaux-Compans, entitled: "Envois d'or et d'argent faits par les gouverneurs et vicerois du Mexique . . . jusqu'à l'année, 1587, etc."<sup>4</sup> This table, which Soetbeer reprints in full, appeared in a French translation without any indication of its source. The original was probably among the papers of the historian Muñoz, to which Ternaux-Compans had access. A Spanish copy, evidently emanating from the same source but

<sup>1</sup> Colecc. de doc., 1st series, vol. xii, p. 352; "Relacion del oro plata é joyas é otras cosas que los procuradores de Nueva España llevan á Su Magestad. Cuyoacan, 19 Mayo, 1522." Cf. also the register of the cargo of one of these caravels, the Sta. Maria de la Rabida (ibidem, p. 253). Bernal Diaz says (cap. 159) that the vessels carried 88,000 pesos in gold lingots besides the treasures of Montezuma's "guardarropa."

The figures printed by Soetbeer at the head of column 2, p. 50 (op. cit.), are given an entirely mistaken meaning. They represent, not the quinto shipped to the emperor in 1522, but the receipts of Alderete as treasurer up to that time.

<sup>2</sup> Cortez' 4th letter, October 15, 1524; Gómara, lib. ii, cap. 64; Bernal Diaz, caps. 159 and 170. Soetbeer calls the cannon a "Gefäss."

<sup>3</sup> Ternaux-Compans, H., *Recueil des voyages . . . pour servir à l'histoire de la découverte de l'Amerique*, 20 vols. Paris, 1837-41. Vols. x and xvi, "Documents relatifs au Mexique."

<sup>4</sup> Ibidem, vol. x, p. 451.

carrying the table down to the year 1601, may be seen in the British Museum.<sup>1</sup>

Soetbeer seems to have assumed that the figures of the table stood for the ordinary "pesos fuertes" of 8 reals, worth 272 maravedis. Professor Lexis, however, interpreted them as representing "pesos de minas" of 450 maravedis or  $13\frac{1}{4}$  reals, and made his calculations upon that basis. The fact that the smaller units were "tomines" and "granos" lent color to his conjecture. On the other hand, the document distinctly stated that the various kinds of pesos were reduced to "pesos d'or communs." Moreover a comparison of the figures with those given by Cortez in his letters, and with others found in the "Colecc. de doc. ined.," would have raised the suspicion that the smaller peso was meant. The sum given for 1522 is really the treasure carried by the two proctors, Avila and Quiñones, reduced to pesos of 8 reals. The 99,264 pesos, 5 tom., 8 gr. set down for 1524, is exactly the 60,000 pesos of gold mentioned by Cortez as sent to Spain with the silver cannon in that year. Lastly, figures in the ledgers of the treasurers of New Spain entirely confirm this conclusion. The first premise of Professor Lexis' calculations was therefore a mistaken one.<sup>2</sup>

Professor Lexis also assumes that the sums sent to Spain on the royal account represented in the long run the whole of the quinto of the produce of the mines. That would be reserved with especial care for the crown, the expense of administration in the Indies being met by other revenues. The figures of the table, therefore, multiplied by five or ten as the case might be, would give in round numbers the entire registered pro-

<sup>1</sup> Add. Mss. 13,964, fol. 196 ff.

<sup>2</sup> Lexis, *op. cit.*, p. 380. For a discussion of units of value in Mexico after the conquest, see appendix to this paper.

duction for those years. Soetbeer, however, introduces other considerations: (1) a part of the quinto was often expended in America; (2) the remittances to Spain included revenues in addition to the quinto; (3) 5 per cent was added to his silver and 10 per cent to his gold figures to represent the bullion unregistered. For these reasons, the estimates he arrives at are somewhat less than those based simply on the data given in the table.

The results obtained by these two scholars are the following: <sup>1</sup>

	1522-44	1545-60	Totals
Soetbeer:			
Gold . . . . .	3,110,750	1,612,800	4,723,550
Silver . . . .	3,086,600	9,433,600	12,520,200
Lexis:			
Gold . . . . .	8,900,000	4,800,000	13,700,000
Silver . . . .	3,180,000	13,720,000	16,900,000

My own estimates for the first forty years after the conquest are based entirely upon the accounts preserved in Seville of the early treasurers of the colony. In those for the first decade the exact amount of the quinto is not always clearly indicated. Inclusive sums are given which cover not only receipts from this source, but other items such as tribute of the Indians, customs dues and judicial fines. I have consequently been compelled, in some cases, to make an approximation based upon a comparison with the figures for other years.

The factor I have used to represent the "royal fifth" during this decade differs from that accepted by Soetbeer and Lexis. According to a remark dropped by the auditor Salmeron in a letter to the emperor of August

<sup>1</sup> The proportionate amounts assigned for gold and silver were purely arbitrary assumptions. No real data were at hand.

Humboldt's figures for Mexico were;

1521-1548	40,500,000 pesos of 8 reals.
1549-1600	104,000,000 pesos of 8 reals.

To these estimates he added one-seventh, or over 14 per cent, to represent bullion unregistered. His results were enormously reduced by both Soetbeer and Lexis.

14, 1531, the crown in the years 1523-29 had collected only one-tenth, thereafter presumably returning to the full legal quinto.<sup>1</sup> But it is evident from the treasury papers that this "diezmo" was not universal. On some bullion one-fifth was paid; on others one-eighth and one-ninth. I have taken one-eighth as a general average.

Apparently by a cedula of September 17, 1548, the quinto on silver was again reduced to a diezmo for six years, but the rule applied only to certain districts. The ordinance was several times renewed till 1572, and then became permanent. Not till 1723 was there a general law for all Mexico. The tax on gold continued to be one-fifth till 1572, when it too was reduced to one-tenth.<sup>2</sup> For the silver production of Mexico in the years 1548-60, therefore, I have again used the factor 8.

Another consideration to be noted is the "derecho del fundidor ensayador y marcador." In these American records it is clear that from the very beginning the crown charged 1 per cent for the trouble of smelting, assaying and stamping the bullion brought to the assay offices. This 1 per cent was first deducted from the bullion, and then the quinto.<sup>3</sup> Charles V in 1552 raised the tax to  $1\frac{1}{2}$  per cent;<sup>4</sup> but 1 per cent continued to be levied in Mexico for some years, perhaps till 1578 when another cedula repeating the order of 1552 was issued. The new rule was not put into force at Potosí till 1585.<sup>5</sup>

<sup>1</sup> Ternaux-Compans, *op. cit.*, vol. xvi, p. 179.

<sup>2</sup> Gallardo Fernandez, F., *Rentas de la corona de España*, vol. vi, pp. 1-19; Duport, St. Clair, *De la production des metaux precieux au Mexique*. Paris, 1843, p. 161. The original cedula bearing upon this point I have not been able to find, but their import is confirmed by the treasury papers. The general ordinance was not extended to Peru till 1735.

<sup>3</sup> The rule was embodied in a general decree by Philip II in 1579. (*Recop.*, lib. viii, tit. 10, ley 19.)

<sup>4</sup> *Recop.*, lib. iv, tit. 22, ley 13.

<sup>5</sup> *Add. Mss.* 13,976, fol. 405 ff. In 1522, the emperor nominated his secretary, Francisco de los Cobos, "fundidor, ensayador y marcador mayor" for all New Spain.

As the combined charge amounted to only 20 $\frac{1}{2}$  per cent, I have not taken this tax into account in my calculations.

Finally, it is evident from the treasury papers that part of the tribute of the Indians was in the form of gold-dust. Such tribute paid to private "encomenderos" was subject to the "royal fifth,"<sup>1</sup> and is included in the figures for the quinto. Revenue from this source on the crown estates, however, naturally represented, not one-fifth, but the entire yield of the gold-washings. To cover this production I have added to my results, for the first period 10 per cent, for the second 2 $\frac{1}{2}$  per cent, of the tribute of the Indians.<sup>2</sup>

The conclusions arrived at are the following:

	1521-44	1545-60	Totals
Gold .....	5,348,900	343,670	5,692,570
Silver .....	4,130,170	22,467,110	26,597,280

The entire output of gold and silver had a value of 32,289,850 pesos of 8 reals. Professor Lexis' figure was 30,600,000 pesos; that of Soetbeer, 17,243,750 pesos.

The final result achieved differs little from that of Lexis. This, however, is only an accident, as his estimates are based on a mistaken reading of the Ternaux-Compans table. Had he interpreted the table aright, his totals would have been under twenty millions. His surmise, therefore, that the remittances from New Spain

In 1534 the patent was extended to include Peru. Santa Marta was added in 1535, and the region of Central America in 1538. As "fundidor mayor" Cobos enjoyed the income from the 1 per cent collected for the crown, and after his death the tax continued to be called, the "Cobos." In 1552 an annuity of 3,000,000 maravedis on the produce of this tax was granted to his son and widow. (A. de I., 2 — 1 — 220/16; 4 — 1 — 1/19, ramo 2; 139 — 1 — 7, lib. 13, fol. 64; Patr. 2 — 5 — 1, no. 2, ramos 16, 17; Aud. de Lima, 109 — 7 — 1. Restrepo, V., Estudio sobre las minas . . . de Colombia. 2d ed. Bogotá, 1888, p. 207.

<sup>1</sup> Recop., lib. viii, tit. 10, leyes 6, 7.

<sup>2</sup> I have found no evidence that there were any mines in Mexico exploited on the account of the crown. Such is also the testimony of Humboldt.

to Seville represented on an average all of the quinto reserved to the Crown proves to be incorrect.

Furthermore, the proportionate amounts assigned by Lexis for gold and silver were wide of the mark. He far over-estimated the production of gold, and under-estimated that of silver. Soetbeer's approximation for gold was much closer to the truth. Both were unaware how great was the decline in the yield of gold within twenty-five years after the coming of the Spaniards. The production of silver, on the other hand, began earlier and made greater strides than either imagined. The famous silver mines of Zacatecas were not discovered till 1548. Ten years later were opened the deposits at Guanajuato, the richest the world has ever known.<sup>1</sup> But even before 1548 the exploitation of less celebrated mines had vastly augmented the metallic output of the country. The average annual yield in 1540-44 was over three times that of the decade immediately preceding, and was itself almost doubled by the yield of the years 1544-48.

An idea of the variations in the production of gold and silver may be gained from the following table, which summarizes my own conclusions:

AVERAGE ANNUAL PRODUCTION (RECKONED IN MARAVEDIS)

Period	Gold	Silver
Aug., 1524-Nov., 1531	54,945,000	2,335,000
Nov., 1531-July, 1539	72,145,000	47,950,000
Aug., 1539-May, 1544	40,890,000	152,050,000
June, 1544-Dec., 1549	13,495,000	269,140,000
Jan., 1550-Mar., 1553	4,600,000	405,100,000
Mar., 1553-Aug., 1555	2,560,000	507,800,000
Aug., 1555-Jan., 1560	1,100,000	467,475,000

<sup>1</sup> Humboldt, *Essai Polit.*, liv. iv, ch. xi.



## III. PERU

When we investigate the gold and silver production of the vice-royalty of Peru and its dependencies, the difference between the figures obtained in Seville and those of Soetbeer and Lexis becomes more striking. The two German scholars made separate estimates for Peru proper (the confines of the present-day republic) and for each of the outlying regions of Upper Peru (Bolivia) and Chili. But in the sixteenth century all three were part of the same vice-royalty, and seem to have been in financial administration dependent upon the royal treasurer at Lima. There are no individual accounts in Seville for Upper Peru or Chili; and in the reports of the precious metals brought back by the great fleets, the gold and silver coming from the Pacific coast of South America is always entered under the rubric "Peru," and not itemized separately for the three districts. The presumption, therefore, is that the receipts of the "Hacienda Real" in Upper Peru and Chili — or at least the quinto — entered into the accounts of the royal treasurer at Lima. And this presumption is borne out by an examination of the accounts themselves.

It is impossible with any assurance of accuracy however, to separate in these ledgers the receipts coming from the three regions. The silver of Potosí and the gold from the vicinity of Cuzco<sup>1</sup> passed through the city of Arequipa for shipment up the coast to Lima; and are noted in the treasurers' books merely as coming via Arequipa, or as "oro y plata que se trae de fuera desta ciudad." It will be necessary, therefore, to compare the results from the figures in the Sevillian archives with the

<sup>1</sup> Doubtless, too, the gold which the conquistadores may have found in Chili.

figures of Soetbeer and of Lexis for Peru, Upper Peru and Chili combined.

For Peru in the sixteenth century, Soetbeer and Lexis had for guidance only the reports of booty secured from the natives by the initial conquerors, and the scattered and often untrustworthy figures of travelers and historians like Cieza de Leon, Zarate, Gómara and Herrera. Their conclusions — which at most could be merest guess-work — differed considerably, Lexis increasing Soetbeer's figures for gold-production and greatly decreasing those for silver. Their results in tabular form are as follows: <sup>1</sup>

PERU			
	1533-44	1545-60	Totals
Soetbeer:			
Gold . . . .	3,318,000	1,896,000	5,214,000
Silver . . .	13,080,000	30,720,000	43,800,000
Lexis:			
Gold . . . .	3,903,600	5,204,800	9,108,400
Silver . . .	5,294,000	7,059,000	12,353,000

For the gold-production of Chili there were even less available data than in the case of Peru, and the figures of Soetbeer and Lexis are consequently even more problematical. Lexis accepts the approximation of Soetbeer, which for the years 1545-60, amounted to 12,800,000 pesos.<sup>2</sup> We have no knowledge of any production of silver in Chili during this period.

For Upper Peru, and especially for the mines of Potosí, more information of a reasonably reliable sort was to be had. There was the testimony of Cieza de Leon, who visited Potosí in 1549, to the effect that the

<sup>1</sup> Soetbeer, *op. cit.*, p. 69; Lexis, *op. cit.*, pp. 397-399. The figures for gold-production are based on the currency standard in Spain in the sixteenth century, which implied a ratio of gold to silver of 1-10.11. The original figures in the works cited are based on the standard of 1879: 1-15.5. I have made the same correction for the gold-production of Chili and Upper Peru.

<sup>2</sup> Soetbeer, *op. cit.*, p. 82; Lexis, *op. cit.*, p. 400.

quinto of the silver mined in that year amounted to about 120,000 pesos de minas a month (or  $1\frac{1}{2}$  millions a year).<sup>1</sup> It was known that over a million ducats were brought to Spain from Peru by the great Jesuit statesman Gasca in 1550, after he had extirpated the unholy brood of the Pizarros — a sum which presumably represented all the funds in the royal chests gathered in the previous four or five years and surviving the chaos of the civil wars. José de Acosta relates that when he was in Peru in 1574, the viceroy Toledo had an estimate prepared of the sums from which the quinto had been collected at Potosí since the opening of the mines in 1545. The report was based for the earliest years on the memory of surviving officials, the books having been lost; and the estimated figure was 76 million pesos de minas.<sup>2</sup> Finally, there were the reports made to the Spanish crown in 1784 and 1802 by the royal treasurer at Potosí, D. Lamberto de Sierra, of the royalties collected each year since 1556. The earlier of these was used by Humboldt without his being aware, apparently, of its original source. Soetbeer quotes it from Humboldt and also refers to the later report of 1802. Lexis for the first time indicates their common origin. Sierra, in his second report, estimates the average annual yield of the quinto during the first eleven years (1545–55) at 443,000 pesos.

All of these data were used in turn by Humboldt, Soetbeer and Lexis, but with somewhat different results. Humboldt calculated that the average yearly return of the quinto at Potosí during the eleven problematical years was 2,300,000 pesos of 8 reals; which presupposes an annual silver production of 11,500,000 pesos, and a total registered production for the eleven

<sup>1</sup> *Cronica del Peru*, cap. cviii.

<sup>2</sup> *Hist. Nat. y Moral de las Indias*, lib. iv, cap. 7.

years of 127,500,000 pesos.<sup>1</sup> As he assumed that a fifth of the metal extracted was never registered and taxed, another 32 millions must be added to cover this fraud.

Soetbeer, and Lexis after him, believed that Humboldt's figures were greatly exaggerated. Soetbeer evidently used as the basis of his calculations the estimate of Sierra. Presuming that Sierra meant pesos de minas of  $13\frac{1}{4}$  reals, and that in this early period at least half the silver mined was not registered, Soetbeer reckoned the average annual production of silver in Potosí and the rest of Upper Peru at 7,820,000 pesos of 8 reals, the total production for the eleven years at 86 millions.

Lexis, however, makes it clear that Sierra meant pesos fuertes,<sup>2</sup> and also throws doubts upon the trustworthiness of Sierra's estimate. He prefers to base his computations on the figures secured by Toledo in 1574, as related by Acosta. Assuming that the 76 millions represents the total amount of silver produced from 1545 to 1574,<sup>3</sup> and using the official figures furnished by Sierra for the quinto in the years 1556-74, he concludes that the total amount extracted between 1545 and 1555 was about 54 million pesos de minas or about 89 million pesos of 8 reals. This result is so close to the approximation of Soetbeer, 86 millions — tho obtained by so entirely different a method — that Lexis accepts Soetbeer's figure.

For the period 1556-60, Soetbeer and Lexis both make use of the official figures supplied by the treasurer Sierra. As Soetbeer, however, reads Sierra's table in

<sup>1</sup> Humboldt is silent regarding the possible gold-production of Upper Peru.

<sup>2</sup> The conclusion of Lexis is borne out by a seventeenth century document in the British Museum (Add. Mss. 13,976, fol. 405), which covers the same ground as does Sierra's report up to the year 1640, but with results reckoned in pesos de minas. It is referred to in the text as Echavarria's table.

<sup>3</sup> Acosta gives this sum as representing only the silver registered.

pesos de minas, and Lexis in pesos fuertes, and as Soetbeer adds 100 per cent to represent the silver unregistered, and Lexis adds only 50 per cent, the results differ considerably. To these five years Soetbeer gives a total silver production of 34,110,000 pesos fuertes; Lexis arrives at the figure 16,000,000 pesos fuertes.

Neither writer possessed any data regarding the production of gold in Upper Peru in this period, and altho each suggests approximate figures, they are obviously of the most doubtful nature. Soetbeer presumes an annual output of 1,000 kilograms, worth at the sixteenth century ratio, 6,330,000 pesos. Lexis believes the gold production between 1545 and 1800 to have been about 80,000 kilos; which gives us 1,978,000 pesos as the total for the years 1545-60.

The results may be summarized in the following table:

UPPER PERU			
Silver:	1545-55	1556-60	Totals
Soetbeer	86,000,000	34,110,000	120,110,000
Lexis	86,000,000	16,000,000	102,000,000
Gold:	1545-60		
Soetbeer	6,330,000		
Lexis	1,978,000		

My own conclusions rest again entirely upon an examination of the ledgers of the royal treasurers of Peru now in the Sevillan archives. The first treasurer, Alonso Riguelme, began the exercise of his office in April, 1531, when Pizarro and his band were preparing to leave Tumbez for the uplands of the interior. His stewardship came to an end only with his death in May, 1548. His receipts include, therefore, the royal share of the booty at Caxamalca, Cuzco, etc.,<sup>1</sup> the quinto from

<sup>1</sup> The various sixteenth century accounts of the ransom of Atahualpa have been ably reviewed and criticized by Soetbeer and Lexis. They need not again be repeated. Cf. Lexis, *op. cit.*, pp. 392-393; Soetbeer, *op. cit.*, pp. 65-66.

the mines of Peru during the first fifteen years of the colony's existence, and the royal income from Potosí in the three years immediately following the discovery of the famous silver deposits there. The exact amounts accruing from each of these three sources are not made clear, nor is the gold and silver always separated in the accounts. Doubtless during the confusion of the first decade, the books were not kept with the scrupulous regard for detail which is evident in later records. Whereas the tribute of the Indians, judicial fines, cruzada, etc., are entered separately, there are also great sums of gold and silver grouped together as coming from no particular source. The latter, I believe, we may confidently assume represent the royal share of the plunder and of the output of the mines. Only the quinto from Peru for the years 1544 to 1548 is specifically itemized. These sums total 1,183,306 pesos de minas of gold and silver, and 169,119 marcs of silver in bars. Reducing the figures to pesos of 8 reals, we have as the total for the quinto during the years 1531-48, — 3,331,770 pesos, which presumes the entire registered amount of gold and silver to have been about 16,658,850 pesos.

During the decade 1548-57, six treasurers filled the office left vacant by Riguelme's death. In their accounts the quinto collected within their immediate jurisdiction of Peru, and the receipts from the neighborhoods of Cuzco and Potosí, are kept separate. So also are the figures for gold and silver from 1550 onwards. But it is impossible to separate the figures for Potosí from those for Cuzco, except by supposing that all the gold came from Cuzco and all the silver from Potosí. Moreover, there are gaps in the accounts to be filled up. I could find no itemized receipts for the period January, 1551-May, 1552, and the items for 1550 are obviously incomplete.

The results I secured are the following. The quinto collected in Peru from May, 1548 to December, 1550, and from May, 1552 to December, 1557, was 372,968 pesos de minas of gold and assayed silver, and 34,104 pesos of current silver.<sup>1</sup> For the months from January, 1551 to May, 1552 no figures are available, but from an examination of the accounts immediately before and after, 65,000 pesos de minas has been assumed as the income for this period.

The receipts from Cuzco and Potosí from May, 1552 to December, 1557 were 1,700,504 pesos de minas of gold and assayed silver, 21,256 pesos of current silver, 3,299 marcs of silver in bars, and  $7\frac{1}{2}$  marcs of base silver. For the four years from May, 1548 to May, 1552, the data are insufficient. I therefore sought an average for these years from other sources. The annual gold production, by reference to figures after 1552, I fixed at about 30,000 pesos de minas or 50,000 pesos of 8 reals. The silver from Potosí I reckoned at about 284,000 pesos de minas or 470,000 pesos of 8 reals and for the following reasons. It is quite likely that the large single item of bar silver in Riguelme's accounts, 169,119 marcs, represents the silver that had come from the royal assay office at Potosí. If this be so, it implies an average annual yield of 276,850 pesos de minas or 458,000 pesos of 8 reals. This figure is very close to Sierra's estimate of 443,000 pesos; and Sierra, in spite of the doubts of Dr. Lexis, probably had access to more information than any of those who have come after. In 1552-57 the receipts from Potosí seem to have amounted to about 1,566,000 pesos de minas, or 284,000 a year.<sup>2</sup> In Echavarria's table the figures for 1556 and 1557 are

<sup>1</sup> Current silver I have reckoned at a discount of about  $12\frac{1}{2}$  per cent.

<sup>2</sup> I have taken the "plata ensayada" as representing the quinto from Potosí, and seem justified by the result.

278,000 and 289,000 respectively. I consequently fixed the annual average for the years 1548-52 at 284,000. The entire quinto from Cuzco and Potosí during these four years probably yielded, therefore, about 2,080,000 pesos fuertes of 8 reals.

On the basis of the above figures the product of the quinto in the vice-royalty of Peru during the years 1548-57 was in round numbers 5,360,000 pesos fuertes, and the entire registered output of the precious metals was 26,800,000.

As my original intention was to confine myself to the reign of Charles V, I did not carry the examination of the records beyond 1557. So I am forced to make use of an approximate figure for the next three years, 1558-60. The average annual receipts from the sources under consideration, in the twenty-nine months from July, 1555 to December, 1557, were 784,750 pesos of 8 reals. Correcting this figure by reference to the quinto collected in Potosí during 1558-60, I accepted 700,000 pesos fuertes as the likeliest approximate annual income from all the provinces of the vice-royalty. The total registered output for the three years would then be 10,500,000 pesos.

The preceding results may be tabulated as follows:

	QUINTO	GOLD AND SILVER REGISTERED
1531-48 .....	3,331,770	16,658,850
1548-57 .....	5,360,000	26,800,000
1558-60 .....	2,100,000	10,500,000
Totals .....	10,791,770	53,958,850

To attempt an estimate of the entire amount of the precious metals extracted, one must take into account the factor of fraud. It is the testimony of all writers from Cieza de Leon onwards, that large quantities of the gold and silver produced at the mines, especially at Potosí, never reached the government assay office, but were smuggled away to avoid payment of the royal fifth.



At Potosí before 1560, Soetbeer reckoned this fraud to have embraced a half of the entire output. Lexis would reduce it to one-third. What it amounted to in Peru, neither has attempted to estimate. Yet that it was just as apt to be carried on there as in Upper Peru is obvious, especially in view of the disorganized state of the country during the first twenty-five years of its history.

Any determination of the actual extent of such fraud is in the very nature of the case impossible. The factor employed to represent it can be only the merest conjecture. The criticism of Lexis, that Soetbeer's figure is too high, seems on the whole to be a just one. His own estimate is probably nearer the truth. Yet, during the first few years after the discovery of the silver deposits in the "Cerro," the amount of treasure unregistered must have been very great. It may easily have been 50 per cent or more. I should, therefore, make the following additions to the figures tabulated above.

The whole registered output for the years 1531-48, 16,658,850 pesos, seems to represent about 9,788,000 pesos from Peru and the rest (the 169,119 marcs) from Potosí. The Peruvian figure may be considered as two-thirds of the total output of the mines, the figure for Potosí as only one-half. On this basis, the entire production of the vice-royalty in these years would be about 28,400,000 pesos.

For the years succeeding 1548, I have accepted Lexis' factor of  $3/2$ . The total figure for this period may then be fixed at about 55,950,000 pesos, and the entire production of the vice-royalty from the conquest to 1560, at 84,350,000.

To discover the proportionate amount of this output contributed by Chili is impossible from the data supplied in the treasury records. An estimate may be

hazarded, however, of the sum extracted from Potosí, and also of the relative amounts of gold and silver in the vice-royalty.

The figures taken to represent the quinto of Potosí from 1545 to 1557 have already been indicated. For the last three years, 1558-60, the official returns of Echavarría have been used. The results are as follows:

QUINTO OF POTOSÍ	
1545-48	830,565 pesos de minas (169,119 marcs)
1548-52	1,136,000 " " "
1552-57	1,566,000 " " "
1558-60	708,945 " " "
Totals	4,241,510 " " "
	or
	7,017,200 " of 8 reals

If we accept these figures and take into account the probable fraud, the total production of Potosí before 1560 must have been about 56 millions.<sup>1</sup> Soetbeer arrived at 120 millions, Lexis at 102 millions.

If Potosí produced 56 millions, 28 millions remain as the production of Peru and Chili between 1533 and 1560. Soetbeer's approximation is nearly 62 millions, that of Lexis about 34 millions. Very likely both writers have vastly exaggerated the gold production of Chili during these pioneer years.

According to the ledgers of the royal treasurers, the gold quinto between May, 1552 and December, 1557, amounted to 188,969 pesos de minas. This presupposes an average annual production, including the amounts unregistered, of about 420,000 pesos fuertes. Lexis assumed for the period 1545-60 an annual output in Peru of about 325,300, and in Upper Peru of about 123,500 pesos. Soetbeer's figures were 118,500 for Peru, and 395,000 for Upper Peru.

<sup>1</sup> About two-thirds of the entire output of the vice-royalty from 1533, and perhaps 80 per cent of the production after 1545.

It seems, therefore, in conclusion, that both Soetbeer and Lexis greatly over-estimated the production of the mines of Potosí during the eleven problematical years, 1545-55. As for the rest of the vice-royalty, Lexis' result is very close to the one based on the treasury papers. The difference may easily be accounted for, as already said, by exaggerated figures assumed for Chili. In regard to the annual gold production, if we again ignore Chili, Lexis seems very near the truth. Soetbeer over-estimates by a fourth or a fifth.

## SUMMARY

	<i>Soetbeer</i>	<i>Lexis</i>	<i>Present Estimate</i>
Peru. 1533-60:			
Gold .....	5,214,000	9,108,400	} 28,350,000
Silver .....	43,800,000	12,353,000	
Upper Peru. 1545-60:			
Gold .....	6,330,000	1,978,000	} 56,000,000
Silver .....	120,110,000	102,000,000	
Chili:			
Gold .....	12,800,000	12,800,000	
Totals:			
Gold .....	24,344,000	23,886,400	
Silver .....	163,910,000	114,353,000	
Grand Totals ..	188,254,000	138,239,400	84,350,000

## IV. NEW GRANADA

Of all the lands in the New World subdued by the Spaniards, that which in the end proved richest in the golden booty sought by the conquerors was the region called by them the Realm of New Granada, today the republic of Colombia. Its exploration and conquest, except along the coasts, came very late, after that of Peru, in the years 1534-38. The initial booty of the Spaniards was less than the ransom of Atahualpa, but the gold extracted from its mines and streams soon surpassed in quantity that produced by Mexico or Peru.

Santa Marta, the first permanent settlement within the limits of the present republic, was founded in 1525 by Rodrigo de Bastides, one of the earliest explorers of the Caribbean coasts. Eight years later a companion of Bastidas, Pedro de Heredia, laid the first stones of the more famous Cartagena de Indias. But altho vague rumors were current of El Dorado and of wealthy, civilized nations living on the high plateaux of the interior, it did not fall to the lot of either to verify them. Bastidas gathered a few thousand pesos of gold, the slow accumulations of generations of Indians from the sands of the neighboring rivers and creeks; but he lost his life at the hands of envious associates. Expeditions set out from Cartagena into the interior after 1534, and returned with extraordinary tales. In a single Indian cemetery (were we to believe accounts so obviously exaggerated), golden ornaments were collected to the value of 300,000 pesos! Cieza de Leon, who as a lad of nineteen accompanied an expedition in 1537, gave most enthusiastic descriptions of the riches of the country. If the gold of all this region, he says, had belonged to a single prince, his wealth would have been greater than that of the Incas.<sup>1</sup>

These gold-hunting raids from Cartagena, however, did not penetrate to the seat of the so-called Chibcha empire. The conquest of New Granada belongs to an obscure lawyer, Gonzalo Jimenez de Quesada, who came to Santa Marta in January, 1536, in the train of a new governor, Pedro de Lugo. Quesada, leaving Santa Marta in the following April with a force of about 500 mén and 100 horses, after a year of terrible suffering

<sup>1</sup> *Cronica del Peru*, cap. cxv. Cf., on the other hand, the account of the expedition of George Espira, governor of Venezuela for the Welsers. He penetrated into the interior in 1535, with a company of 261 men and 80 horses, and emerged after three years with the loss of half his men and 66 horses. The total amount of treasure secured was 5,518 pesos, which after smelting and refining shrank to less than 1,600 pesos de minas. (Oviedo, lib. xxv, cap. 16.)

from heat and fever, insects and wild animals, emerged on the great plateau of central Colombia with a remnant of 170 followers. Here he found cultivated fields, prosperous towns, and what was of supreme importance to these "white children of the Sun," signs of great wealth in gold and emeralds. From Muqueta, Tunja and Iraca, the three chief pueblos of the Chibcha race, Quesada and his men secured rich plunder; and in August of 1538 they laid the foundations of their new city, Santa Fé de Bogotá.<sup>1</sup>

The reports of treasure gathered in the expeditions from Cartagena seem on the face of them to be grossly exaggerated. From Quesada we for the first time obtain trustworthy figures. In a narrative composed later by the great conquistador himself, he tells us that the booty amounted to 191,294 pesos de oro fino and 56,682 pesos de oro bajo;<sup>2</sup> and these figures are corroborated by the ledgers of the first royal treasurer of the new colony.

As is so well known, Quesada's conquest of the plateau was scarcely complete, when two other companies of white men appeared simultaneously in his vicinity — one led by Sebastian Benalcázar, a captain of Pizarro, who had conquered Quito, and was induced by reports of the rich kingdom of the Chibchas to penetrate still farther north; the other, an expedition of a German named Nicolas Federmann, agent of the great banking house of the Welsers, who had made his way through the forest from Coro in Venezuela, also in search of the fabled El Dorado. Each of the trio claimed priority of discovery. . According to one pious story, each had 160 men, one monk and one priest — the coincidence struck

<sup>1</sup> Oviedo, lib. xxvi, cap. 11.

<sup>2</sup> Each of the soldiers following Quesada received 510 pesos "oro fino," 57 pesos "oro bajo" and 5 emeralds.

their superstitious imaginations, and they promptly came to an agreement. Benalcázar and Federmann made terms with Quesada for ready cash, and the three men returned to Spain in the same ship, to press their respective suits at the Spanish court.

The first of Quesada's party to act as treasurer was Antonio de Lebrixa, one of the most active and intrepid of his captains. Lebrixa returned to Spain with his chief, and his accounts close on May 12, 1539, the day on which Quesada left Bogotá for the coast. Hernando Venegas took his place, and exercised the duties of treasurer till June, 1543, while Hernan Perez de Quesada, brother of the conquistador, was in nominal command of the colony. In the spring of that year arrived a new governor, Alonso Luis de Lugo, a renegade son of Quesada's old associate. Alonso had intrigued successfully against Quesada in Spain, and came out to America with a commission as adelantado of the province. He deprived many of the original conquerors of their lands and Indians, and Venegas lost his post as treasurer. Venegas' successor, Pedro de Briceño, a former treasurer of Santa Marta, was no more fortunate under the tyranny of the governor. The "caxa real" was plundered, and the royal officials imprisoned and maltreated. In March, 1544, the treasurer and contador fled to San Domingo, Briceño leaving powers with Hernando Xuarez de Villalobos to act as deputy in his absence.

The Spanish crown in 1545 sent out a commissioner to reduce the country to order, and with him Briceño returned to Bogotá. As a consequence of these dissensions, however, the royal accounts were reduced to a state of entire confusion. Briceño continued to act as treasurer till his death in December, 1552; and in the following month Andres Lopez de Galarra assumed the responsibilities of that office.

The most interesting of the New Granada papers are naturally those of Antonio de Lebrixa, who received the royal moneys at the time of the conquest. Here are some of his items:

Lo perteneciente á su Magestad de quintos de lo que se hubieron y allegaron mientras duró la conquista, lo qual se hizo partes y dividió entre los conquistadores:			
	Pesos	Tom.	Gran.
oro fino	38,259	0	0
" bajo	7,457	5	0
" falonia	3,688	0	0
esmeraldas	363 piedras finas		
Quinto de lo que dio el cacique de Bogotá, Agosto, 1538:			
oro fino	720	0	0
" bajo	520	0	0
" falonia	1,200	0	0
esmeraldas	62 piedras		
Ibidem (another payment from the cacique):			
oro fino	915	0	0
" bajo	224	0	0
" falonia	500	0	0
esmeraldas	60 piedras		
Oro hallado en una sepultura:			
oro falonia	340	0	0
Quinto delo que se huvieron por el libro del veedor de la provincia de Venezuela, que vino con la gente de Federman que se huvo en aquella jornada:			
oro fino	27	0	0
" bajo	525	0	0
Quinto de lo que traxo Fernand Perez (de Quesada) cuando fue a Tunja:			
oro fino	52	0	0
" bajo	60	0	0
Quinto del valor de dos esmeraldas grandes:			
oro bueno	130	0	0 <sup>1</sup>

Soetbeer, with nothing to guide him but the vague and often exaggerated reports of contemporary chroniclers, fixed the average annual production of gold in New Granada in the sixteenth century at 2,000 kilo-

<sup>1</sup> Of these receipts, Quesada carried to Spain as a present to the emperor, 11,000 pesos "oro fino," and all the emeralds, 562. (Oviedo, lib. xxvi, cap. 11.) All of Oviedo's figures in this connection are substantially trustworthy.

grams. Lexis adopts the same figure. Taking as a basis the Spanish official ratio of gold to silver in the first half of the sixteenth century, this represents for the years 1538-60 a value of almost 19 million pesos fuertes. Soetbeer's reckoning, based on the ratio in 1879, was 30 millions.

A Colombian scholar, Vicente Restrepo, in his volume entitled *Estudio sobre las minas de oro y plata de Colombia*, published in 1888, reached conclusions materially reducing Soetbeer's figures. Restrepo estimated the value of the gold produced in New Granada before 1600, as 53 million pesos. This presumes an annual production of 1,325 marcs, or a total of 31,800 marcs for the years 1538-60. At the sixteenth century ratio it was equal to about 12,600,000 pesos, over 6 millions less than the conclusions of Soetbeer.

In the ledgers of the royal treasurers, we find the receipts from the quinto and diezmo, between 1538 and the end of 1557, to be as follows:

	Pesos	Tom.	Gran.
oro fino .....	73,923	3	0
oro bueno .....	165,470	2	8
oro bajo .....	166,755	2	0

No clear indication of the relative values of these various forms of gold is vouchsafed us, either in these ledgers or in the writings of contemporary colonists. It seems most probable, however, that the peso de buen oro was the "peso de oro de minas" of Mexico, of 450 maravedis. "Oro fino" may be identified with treasure secured by the Spaniards in the form of gold-dust, and granted a value of about 490 maravedis. The "peso de oro bajo" was perhaps worth anywhere from 200 to 300 maravedis.

Reducing the above figures to pesos of 8 reals, we have the quinto amounting to 516,600 pesos, and the



diezmo to 57,100. To cover the period, 1558-60, for which there are no figures, we may strike an average for the preceding five years, and add a 35 per cent increase. On this basis, the entire income of the crown from the mines was 720,000 pesos, representing a total registered production of about 4,054,000 pesos.

As in the case of Peru, however, there is reason to believe that a considerable percentage of the gold mined never paid the government tax. There may also be mistakes or omissions in the records themselves, for these ledgers, as I indicated above, are in some places imperfect. To meet such possibilities, we may make the liberal allowance of 50 per cent. The figure, 4,054,000, would then represent about two-thirds of the gold-production of the country, registered and unregistered. The entire output would amount to 6,081,000 pesos. But even this result is less than one-half the estimate of Restrepo, and about 32 per cent of that of Soetbeer and Lexis.

#### SUMMARY

Soetbeer.....	18,990,000 pesos
Restrepo .....	12,600,000 "
Present estimate .....	6,081,000 "

#### V. WEST INDIES AND TIERRA FIRME

It was the half-circle of the West Indian islands which Columbus reached on his momentous voyage to the coasts of Cathay. And it was from these islands and from the neighboring shores of Central America that the first remittances of gold were sent back to Europe. If Columbus had a higher motive in seeking the Indies, perhaps the delivery of the Holy Places from the infidel, the explorers who followed immediately in his steps were mostly prompted by the hope of find-

ing lands where gold was to be easily secured. Even Columbus believed that "el oro es excellentissimo con el se hace tesoro y con el tesoro quien lo tiene hace quanto quiere en el mundo y llega á que hecha las animas al paraiso."

The reports of these early Spanish adventurers did more credit to their fancy than to their observation. And altho they served to nerve the nation to new undertakings, they also prepared the way for deep disillusion. The actual returns of gold during the first decade must have been in sharp contrast to the expectations thus engendered.

Only after the coming of Bobadilla to Hispaniola as governor in 1499, apparently, did the colonists develop the gold-washings on the island to any great extent; largely, perhaps, because the new governor granted them exemption from the payment of the royal tax.<sup>1</sup> The fleet of eighteen vessels which sailed for Spain with Bobadilla and Roldan in 1502, and the greater part of which perished by the tempest in which Columbus almost lost his life, was considered the richest of its time. The treasure it carried was little over 100,000 pesos de oro, divided between the king and private individuals.<sup>2</sup>

Altho Bodadilla's successor, Ovando, was strictly enjoined to enforce the royal dues and collect the arrears of Bodadilla's time, the exploitation of the gold-washings continued, entailing the rapid extermination of the unfortunate native population. It reached its zenith probably toward the end of the second decade of the sixteenth century. There were two regions on the island round which these activities centered: one some

<sup>1</sup> Navarrete, *Colecc. de viajes, etc.*, vol. ii, p. 273.

<sup>2</sup> Gómara, *Hist.*, lib. i, cap. 32; Oviedo, *Hist.*, lib. iii, cap. 9. The treasure included a nugget for the queen weighing 3,600 pesos. Las Casas says that there were 28 vessels carrying 200,000 pesos.

thirty miles from the city of San Domingo, called San Cristobal; the other, the more famous Cibao, about ninety miles from the capital. Peter Martyr wrote, probably in 1510, that the two districts produced over 300,000 pesos de oro a year.<sup>1</sup> The annual yield was perhaps never more than 400,000 or 450,000.

After 1520 the gold-production of Hispaniola seems to have rapidly declined. Small-pox and ill-treatment decimated the Indian laborers; the gold-washings themselves were gradually exhausted; the introduction of sugar mills diverted the colonists' attention to agriculture; the newly explored regions on the mainland drew men more and more from the islands. The annual output of gold dwindled to 30,000 pesos.<sup>2</sup> If the remittances from Hispaniola continued to be larger than such a figure would warrant, it is because bullion from the neighboring islands of Porto Rico, Cuba and Jamaica, as well as from Central America and Venezuela, generally passed through the hands of the San Domingo treasurer on its way to Spain.

Porto Rico and Cuba, settled by Spaniards in the second decade of the century, at first also yielded considerable quantities of gold-dust and nuggets. They made their largest returns about the same time as did Hispaniola, each producing perhaps 100,000 pesos a year. But the duration of the gold-washings, especially

<sup>1</sup> Decade I, lib. 10, cap. 3.

<sup>2</sup> Colecc. de doc. ined., 2d ser., vol. ii, p. 370. Soetbeer, p. 49, incorrectly makes the figure refer to Sta. Marta.

In the meantime, between 1500 and 1520 the percentage reserved to the crown was gradually reduced. At first, by an ordinance of April 10, 1495 (Nav. Colecc., vol. ii, p. 165), the crown was to receive two-thirds of the gold collected on the island. This had been the rule in Spain, at least since the time of Juan II (Gallardo, vol. vi, pp. 1-19). Between 1500 and 1504, in reply to petitions from the colonists, the crown's share was successively reduced to one-half, one-third and one-fifth. (Colecc. de doc. ined., 1st ser., vol. xxxi, pp. 13, 216; 2d ser., vol. v, p. 43.) The "quinto" was established for ten years by a cedula of February 5, 1504, and continued till 1520. In the latter year the tax on placer gold was fixed at a diezmo, or one-tenth (ibidem, 2d ser., vol. ix, p. 460), suffering no other reduction till 1552, when it was made one-twelfth (A. de I., 6 — 3 — 2/14, ramo 5).

in Cuba, was very brief, and both islands soon repeated the history of the older colony.

Figures of the booty captured in the various expeditions along the coasts of Darien, Santa Marta and Venezuela, as they are reported by Gómara, Oviedo and Herrera, give an exaggerated impression of the income of Spain from such sources. If some rich finds were made, the total results were meagre enough. Most of the raids scarcely repaid the blood and treasure expended. And the few gold deposits discovered in those regions before the conquest of Mexico, were exhausted even more quickly than the gold-washings on the islands.

Guatemala, and its dependent provinces of Honduras and Nicaragua, continued to produce some gold after the raids of the first conquerors. But compared with the wealth of Peru or New Granada, its yield was very slight. It scarcely exceeded on an average 40,000 pesos a year. And by 1560 the output was almost negligible.

Soetbeer and Lexis possessed no information regarding the gold production of these regions save what they could find in the "*Coleccion de documentos ineditos*" and in the historians. So their estimates again were highly problematical. For the years 1493-1520, Soetbeer assumed an average annual production of between 700 and 750 kilograms; for the years 1521-44, about 300 kilograms. This means, at the sixteenth century ratio between gold and silver, a value of 10,880,000 pesos. Lexis' figure is 48,000 kilos for the entire period, or 18,990,000 pesos.<sup>1</sup> My own result is based upon a careful consideration of data too miscellaneous to be included in the present paper. It comes remarkably close to the approximation made by Lexis, *i. e.*, 17,000,000.

<sup>1</sup> At the nineteenth century ratio adopted by Soetbeer and Lexis, the figures are 17,187,500 and 30,000,000 respectively.

## VI. RESUMÉ

We have passed in review all the regions of the New World from which gold and silver were obtained in the sixteenth century. In most cases a substantial reduction has been made from the figures till now received as authoritative. The difference will appear more clearly in a table summarizing the foregoing estimates:

	<i>Soetbeer</i>	<i>Lezis</i>	<i>Present Estimate</i>
Mexico:			
Gold .....	4,723,550	13,700,000	5,692,570
Silver .....	12,520,200	16,900,000	26,597,280
Peru and Chili:			
Gold .....	18,014,000	21,908,000	} 28,350,000
Silver .....	43,800,000	12,353,000	
Upper Peru:			
Gold .....	6,330,000	1,978,000	} 56,000,000
Silver .....	120,110,000	102,000,000	
New Granada:			
Gold .....	18,990,000	18,990,000	6,081,000
West Indies and Tierra Firme:			
Gold .....	10,880,000	18,990,000	17,000,000
Totals:			
Gold .....	58,937,550	75,566,000	
Silver .....	176,430,200	131,253,000	
Grand Totals:	235,367,750	206,819,000	139,720,000 <sup>1</sup>

## VII. SEVILLE

In view of the rôle played in European politics by Ferdinand of Spain and his grandson Charles V, it is interesting to know exactly the amount of revenue drawn by these princes from their ultramarine possessions. Precise figures are the more important because of the vague ideas of contemporary and later historians. All the royal moneys from the Indies, whatever their origin, passed through the Casa de Contratacion in

<sup>1</sup> 139,720,000 pesos of 8 reals were equivalent to 101,345,000 ducats.

Seville. From the records of this institution, therefore, such information should be readily obtainable.

The receipts, decade by decade, of the treasurers of the Casa from 1503 to 1560, are as follows: <sup>1</sup>

	Maravedis	Mares	Onz.	Och.	Tom.	
1503-10	148,960,161	13	1	4	0	(oro guanines)
1511-20	260,298,589	136	7	4	3	" "
1521-30	203,331,584		7	1	3½	" "
		1	3	5	4½	(oro en polvo)
1531-40	694,368,519	1,996	5	1	1	(oro guanines)
		132	5	3	2	(oro en polvo)
		8,081	0	7	0	(plata)
1541-50	554,001,827					
1551-60	3,952,055,449					

The total receipts to 1560 amounted to almost six billion maravedis, or over 21,371,000 pesos of 8 reals. The gold and silver given in the table by weight, which probably represented plate, jewels, gold-dust, etc., part of the spoils of the "conquistadores," I have valued at 175,000 pesos. This brings the final figure to nearly 21,550,000 pesos.

So much of the income of the Spanish crown in America actually reached the shores of Europe. It was probably two or three millions more than the whole proceeds of the quinto, and perhaps 80 per cent of all the moneys received by the American treasurers during this period.<sup>2</sup> This revenue, of course, does not comprise the total importation of coin and bullion from the New World. The sums which came over on the account of

<sup>1</sup> For the years, 1523-25, the records of which are wanting, I have assumed an annual average of 16,858,000 maravedis. For the year 1560, again, I have assumed a receipt of 400 million maravedis.

The items by weight under "1531-40" represent part of the plunder of Peru. The 1,996 marcs was the second shipment, in charge of the contador, Antonio Navarro (the first had been brought back by Hern. Pizarro). It was equal to about 100,000 pesos de minas.

<sup>2</sup> The expenses of government in America after the creation of the vice-royalties certainly consumed more than 20 per cent of the receipts. They probably amounted nearly to 50 per cent. The figure in the text, 80 per cent, results from the fact that in the earlier years of all the colonies, before an elaborate administration was set up, by far the greater part of the royal income was shipped to Spain.

merchants and other private individuals must have been many times greater. Unfortunately we have no records of them approaching in completeness those for the receipts of the king. Every peso of gold or silver shipped from an American port had to be carefully registered, and two copies of the register forwarded to Seville on different vessels. But almost all of these registers have disappeared. The few surviving in the Archivo de Indias are of too desultory a character to make any generalizations from them possible.

We may gain some idea, however, of the extent of such importations on the principal armadas which returned from the Indies before 1560. The crown early fell into the habit, whenever it was in straits for money, of appropriating all or most of the private remittances brought back by the fleets. The dispossessed persons were generally recompensed with perpetual annuities paying from 3 per cent to 6 per cent on the capital seized. All treasure so embargoed was noted as part of the receipts of the Casa de Contratacion. The first important confiscation of this sort I have found was in 1523. It amounted to 300,000 ducats, and represented all the gold and silver that came from the Indies in five vessels on the account of passengers and merchants. The money was required for the war between the young emperor and his rival Francis I. In 1535, to meet the expenses of the campaigns against Barbary, 800,000 ducats were seized out of the treasure arriving in four ships from Peru. Over 230,000 were taken in 1538, on the return of the armada of the Blasco Nuñez Vela, and a like amount in 1545. In 1553, 600,000 ducats were confiscated from the fleet of which Bartolome Carreño was admiral, and 425,000 from the Mexican fleet of Diego Felipe two years later. The most considerable of these embargoes was in the winter of 1556-57, of the

bullion carried on the two fleets which returned from Vera Cruz and Nombre de Dios in the previous autumn. It reached a total of 1,600,390 ducats and was  $2\frac{1}{4}$  times the sum brought on the account of the king. The gold and silver confiscated on Carreño's fleet was equal to  $78\frac{1}{2}$  per cent of the royal treasure, and that from the fleet of Diego Felipe amounted to 60 per cent. Altogether the sum so secured during the reign of Charles V, was about five million ducats.

The report that one of these Indian argosies had been sighted off the Azores was news of supremest interest, not only to the Seville merchants, but at the court of Madrid, in Flanders, and in Germany. On the safe arrival of the galleons before San Lucar at the mouth of the Guadalquivir, or in Cadiz harbor, often depended, even in the time of Charles V, the monetary solvency of the government.

As Spain was never commercially self-sufficient, never manufacturing enough to meet her own needs, there was a lucrative import trade which attracted hosts of foreign merchants to the country. Germans and Genoese,<sup>1</sup> in the sixteenth century, gathered into their hands not only a virtual monopoly of the Spanish fairs, but all the financial business as well. During the emperor's reign they became a serious menace. As neither the revenues in the peninsula nor the treasure from the Indies was sufficient to cope with the expense of the wars, Charles was forced into greater and greater dependence upon these foreign capitalists. The returns of gold and silver from America were mortgaged in advance, and the Fuggers, the Haros and the Grimaldi were as much concerned with the safety of the Indian

<sup>1</sup> In the earlier part of the century also a few Spanish merchant-princes established at Antwerp, like the Haros and the Vaglios. (Ehrenberg, *Das Zeitalter der Fugger*, pt. I, cap. 4.)



fleets as was the crown itself. In 1520-21 the Fuggers had 33,000 ducats hazarded upon the remittances from the New World; and of the 800,000 ducats embargoed by the crown in 1535-37, over 100,000 went to this same German house.

Increasing production of gold and silver was the most important cause of the price revolution of the sixteenth and seventeenth centuries. As by far the greater part of this metallic wealth came from America, the function of Spain in the movement was a very significant one. She became the distributor of the precious metals to the rest of Europe. And since she "produced little and manufactured less," she performed this function with an efficiency which startled even the Spaniard. The balance of trade in Spain was always unfavorable. In time of greatest prosperity and in spite of all laws, money passed out of the country. But with the injury to agriculture which must have resulted from the revolt of the Comuneros, and with the naïve efforts of the Cortes to stem the rise of prices, the situation of Spain toward the middle of the sixteenth century was already becoming intolerable.<sup>1</sup> Her manufactures, even her grain, came to her from France, England and the Netherlands, and thither went her gold and silver in exchange.

Spain, moreover, could not supply the goods demanded in increasing quantities by the Indies, when she did not have enough for her own population. Again strangers were resorted to, and to them the Spanish merchant lent his name to elude a law which made commerce with America a monopoly of the home-country. So in time the foreigner engrossed the greater part of the colonial trade as well, and much of the treasure from the New World was probably diverted immediately to

<sup>1</sup> Bernays, *Zur inneren Entwicklung Castiliens*, pp. 404 ff.

the north of Europe. Altho license was necessary from the crown, this export of gold and silver was the more preferred because the goodness of Spanish coins exalted them above those prevailing in other countries, and made them certain to yield a handsome profit abroad.

One other circumstance contributed to the export of the precious metals: Hapsburg imperialism, — the wide distances separating Charles' dominions, the universality of his interests, the expense of his endless wars. While troops in Italy or in the Netherlands were starving or without pay, the Spanish Cortes was inveigled into doubling the *servicio*,<sup>1</sup> or into an increase of the *alcabala*; or the cargoes of the plate fleets were requisitioned for the needs of the crown. Spanish funds were used to maintain an alien empire.

On such occasions the help of the ubiquitous foreign merchant-princes was again indispensable. The arrival of a rich Indian fleet in the Guadalquivir did not in itself mean the instant satisfaction of the needs of the moment. Even if remittances were sufficient in quantity, they could not forthwith be transported as bullion to Italy or Flanders. They had first to be coined into *escudos* and *reals*. Charles moreover rarely possessed the marine necessary to convoy the treasure in safety to his distant provinces. The government, therefore, called in the aid of the great commercial houses with international connections. Through them it was possible to make payments abroad with certainty and dispatch, the bankers being recompensed with cash in Spain, or with assignments upon future revenues.<sup>2</sup>

Spain, in the first half of the sixteenth century, perhaps felt no immediate harm from this depletion of her

<sup>1</sup> Bernays, *op. cit.*, p. 391. In Ferdinand's later years the *servicio* was 50 millions annually. After 1539 it was 150 millions.

<sup>2</sup> Ehrenberg, *op. cit.*, pt. III, cap. 3.

coinage. A non-industrial country could not well absorb all the produce of the American mines. Moreover her stock of precious metals was continually being replenished from an apparently inexhaustible source. On the other hand, this American wealth did serve "to feed an unpractical vanity and further unfit the nation for manufacturing and commercial life." Everything could be purchased with gold and silver, not only cloths and grain, but armies, heretics, and the hegemony of Europe. The opportunity for conquest was offered by the Hapsburg connection. And Spain, by the loss of her industry and the plundering of her fleets, paid the cost of Hapsburg imperialism.

CLARENCE H. HARING.

BRYN MAWR COLLEGE.

## APPENDIX

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### MONETARY VALUES IN SPANISH AMERICA IN THE FIRST HALF OF THE SIXTEENTH CENTURY

Both Soetbeer and Lexis attempted to resolve the complex question of monetary values in Spanish America in the first half-century of European occupation. Their information was gleaned from meagre references found in the "Coleccion de documentos ineditos," in the collection of Ternaux-Compans, and in the pages of sixteenth century historians of America such as Herrera and Garcilaso de la Vega. The American treasury records introduce further elements of confusion scarcely suspected before; but they also enable us to gain a juster idea of the standards of value employed in the American colonies.

In Hispaniola and other islands in the first two decades of the sixteenth century, bar gold was doubtless used by weight as a medium of exchange. The crown, however, also endeavored to put into circulation silver and copper coins sent over from Spain. In Seville is a copy of a cedula of April 15, 1505, ordering the officers of the Casa de Contratacion to coin and ship a half-million of silver and a half-million of vellon, the silver real to circulate at a value of 44 maravedis (A. de I., 139, I, 4, lib. i, fol. 159). A letter of Ferdinand to Governor Ovando, in the following December, refers to "dos millones de cuentos de moneda" being sent to Hispaniola, money which Ovando was to divide among the inhabitants in exchange for gold (Colecc. de doc., 2d ser., vol. v, p. 114). Another cedula of February 28, 1510, to Diego Colon, announces the sending of the "cuento de plata de vellon" (sic), for which the governor had asked to meet the lack of small currency in the colony (ibidem, p. xcvi); and in the ledgers of the India House are noted remittances to cover the value of coin thus sent out.

By selling silver reals at 44 maravedis, when their legal value in Spain was only 34, the crown made an excellent profit on the risk and expense of these shipments. And the real continued to circulate at the higher rate till 1538, when as a consequence of the establishment of mints in the Indies, its value in Hispaniola was arbitrarily reduced to 34, in conformity with the rule elsewhere (ibidem, vol. x, p. 401; Recop., lib. iv, tit. 24, ley 4). Letters to the emperor from judges, merchants and other inhabitants in 1538-39 represented the evils which such an act would bring upon the colony. Prices and wages would rise, trade cease, and the island be depopulated. As no one would bring silver to the newly-established mint, it had been closed and was let out to rent. It seems that in response to these appeals, Charles V extended the old rate for

five years more, after which interval the legal price of the real was to be maintained. (Colecc. de doc., 1st ser., vol. i, pp. 546, 558, 564. A. de I., patr. 2, 1, 2/21, no. 7; 53, 6, 8, no. 51; 139, 1, 10, lib. 22, fol. 314.)

Apparently in the first flush of discovery of these new lands, the Catholic Kings had intended to set up mints immediately to receive the precious metals secured there. In the instruction to Columbus of April 23, 1497, we read:

"Asimismo nos parecee quel oro que hobiere en las dichas Indias se acuñe é faga dello moneda de excelentes de la Granada, segund Nos habemos ordenado que se faga en estos nuestros Reinos, porque con esto se evitará de facer fraudes é cautelas del dicho oro en las dichas Indias, é para labrar la dicha moneda, mandamos que lleveis las personas é cuños é aparejos que hobiéredes menester; etc." (Navarrete, Colecc. de viajes, etc., vol. ii, p. 184.)

Not till 1535, however, was a royal mint created in America. A cedula of May 11 of that year provided for a Casa de Moneda in the cities of Mexico and San Domingo. Only silver was to be coined, except in San Domingo where copper might be issued whenever the crown gave special license. The same rules were to be observed as in the mints in Spain (except that the master of the mint was to take three reals out of every marc of silver coined, instead of two), and pieces of eight, four, two, one and one-half reals were to be struck, to be current in the Peninsula as well as in the Indies. There is no evidence, however, that the third real was collected before the reign of Philip II. (Colecc. de doc., 2d ser., vol. x, pp. 264-271; A. de I., 139, 1, 1, lib. I, para. 7:—Instruct. to Ant. de Mendoza, 1st viceroy of N. Spain, April 25, 1535; Recop., lib. iv, tit. 23, ley 4:—Ord. of November 18, 1537. The ordinance of 1535 provided for the coining of one, two, and three real pieces, "medios" and "cuartillos.")

Up to Acosta's time at least (he went to the Indies in 1571), no copper was used on the mainland, owing to the abundance of gold and silver, vellon being current only in the islands (Hist. de Ind., lib. iv, cap. 3). Apparently gold was not minted in Mexico City till 1675, when its coinage was ordered by a cedula of February 25, of that year, "igual en todo à la que se acuñaba en Espana" (Colecc. de doc., 2d ser., vol. x, pp. lxxii ff.).

Before the establishment of mints, means of exchange on the continent of America were extremely crude and confused. In the ledgers of the royal treasurers of Mexico, we find references to many kinds of pesos — "oro comun," "oro mejor que comun con tres quilates añadidos," "oro marcado," "oro de ley," "oro de ley perfecta," "oro de minas," "oro de Tipuzque." To discover the relative values of these various forms of gold is essential to a proper understanding of the ledgers.

Three clues are provided us by the treasurers themselves. We learn that after August 1, 1523, three carats were added to every peso de oro "demas de la ley," and that these three carats were equivalent to sixty maravedis. Such pesos, "mejor que comun," had a value 20 per cent higher than "oro comun," while "oro de ley perfecta" was 40-50 per cent higher. Two more suggestions come from two letters of the licentiate Salmeron, a judge of the Audiencia of Mexico, written to Spain

in August, 1531. In one he says that there are 50,000 pesos "oro de Tipuzque" circulating in the country, and that this base gold if converted into ordinary pesos de oro, would approximate 30,000 of the better sort. In the other, speaking of the rent paid to Cortez for the housing of the Audiencia in a portion of his palace, Salmeron remarks that the 9,000 "pesos corriente" already paid the Marquis equal about 6,000 "pesos de oro de minas." Lastly there is the testimony of Bernal Diaz del Castillo that the Spanish authorities in the beginning circulated gold of three carats less than the legal fineness in order to aid the soldiers in the payment of their debts, and incidentally to defraud the merchants who had come to Vera Cruz to trade. This baser gold, he continues, was called "Tipuzque," an Indian word meaning copper. Eventually the Emperor, moved by petitions from the colonists, ordered the payment of customs dues (almojarifazgo) and judicial fines (penas de camara) to be made in this "oro de Tipuzque," so as to withdraw it from the country.

Soetbeer and Lexis have made clear that the usual standard of value in the Indies in the first half of the sixteenth century was a peso de oro worth 450 maravedis and about 22 carats fine (a peso 22 carats fine was strictly worth 454 maravedis; a peso of 450 maravedis was strictly 21.81 carats fine). Their conclusion is confirmed by the colonial records in Seville. This peso was not a coin, but an imaginary unit; it represented, like the castellano in Spain, one-fiftieth of a marc of gold; and it came to be known as the "peso de oro de minas." As the relation between gold and silver was roughly taken to be 1-10, a marc of silver was said to be worth five of these pesos de oro. Very soon, however, silver was reckoned at the legal value set upon it in Spain, 65 reals or 2,210 maravedis, which implied a ratio of 1-10.18, very close to the legal ratio, which was 1-10.11.

The peso de oro de minas was the unit of exchange from the conquest until the thirties of the sixteenth century. Men paid in uncoined gold of a certain weight and fineness. But in the thirties the output of the Mexican silver mines began to be felt, silver became more common than gold, and was used more and more as a circulatory medium. And as till 1537 there was no American currency, silver too was used by weight as equivalent for these imaginary pesos de oro. After 1537, however, when a mint was in operation in Mexico City and silver pieces of eight reals were issued, the silver peso naturally superseded the peso de oro de minas as a unit of value. But the process was a slow one, and till well into the following century the imaginary peso of 450 maravedis continued to be used in buying and selling bar gold and silver (Soetbeer, *op. cit.*, p. 135, says that it was used only in connection with gold bullion). The silver peso of eight reals or 272 maravedis was the famous Spanish dollar or "piece of eight" of trade the world over.

Of the numerous kinds of gold mentioned in the ledgers of the royal treasurers of Mexico, it is probable that "oro de ley perfecta" represented pesos of the full value of 450 maravedis. If this gold was rated 50 per cent higher than current or common gold, the latter must be worth only 300 maravedis and have a fineness of about 15 carats. If current gold with three carats added was worth 60 maravedis more than before, its value must be about 360 maravedis. This is confirmed by

the statement of the treasurer that it was 20 per cent higher. And the whole reasoning falls in with the remark of Salmeron that 9,000 pesos "corriente" equalled 6,000 pesos de oro de minas. It may also help to explain the statements of some seventeenth century writers that there was an imaginary unit called the peso ensayado of nine reals (306 maravedis.) (Brit. Mus. Add. Mss., 13,976, fol. 46; Veitia Linaje: Norte de la Contratacion, p. 274.)

The value of the "oro de Tipuzque" is always clearly indicated by the treasurers — 272 maravedis. It agrees with the other testimony of Salmeron, that 50,000 pesos de Tipuzque were worth 30,000 of the better pesos.

Our table then is the following:

Peso de oro de Tipuzque .....	272 maravedis
" " " corriente .....	300 "
" " " " con 3 quil. anadidos .	360 "
" " " de ley perfecta .....	450 "
" " " de minas .....	450 "

These figures afford a reasonable explanation of the early Mexican treasury records. At the time of the conquest the Spaniards brought with them from the West Indian islands the peso do oro of 450 maravedis. But owing to the crude means of testing the fineness of gold in the jewels, ornaments, etc., constituting the most important part of the plunder, that which passed for "oro de ley" was much closer to 18 than to 22 carats. Moreover the weights used by the conquerors were evidently at fault. In fact we are told by Bernal Diaz that they had to manufacture their own scales and weights to ascertain the value of their booty. Lastly, the Spaniards deliberately debased the gold in circulation, as recorded by this same chronicler. It was doubtless to correct this final blunder that after August 1, 1523, three carats were added to every peso of bullion refined by the royal officials, as we discover in the ledgers of 1522-24. The actual value of the peso before this correction was about 300 maravedis, after the correction about 360 maravedis. The latter was the "peso corriente con tres quilates anadidos." Each, however, in the beginning was current as the peso de oro of 450 maravedis.

Most of the gold in circulation between 1524 and 1530 was in one or the other of these forms. But in the records of these same years we find appearing for the first time "oro de ley perfecta"; and this seems to have been the peso finally raised to its full weight and fineness. Such gold always paid one-fifth to the crown, while other bullion was taxed at rates ranging from one-sixth to one-twelfth.

In the accounts of 1530-31, only "oro de ley perfecta" and "oro comun" are the units used. "Oro de minas" is mentioned, but it refers rather to the source of the gold than to the value of the peso. Not till 1531-37 do we find the "oro de Tipuzque," worth 272 maravedis. It is contrasted with "oro de ley perfecta" and with "oro de minas de marca real." It was likely the "oro comun" of earlier ledgers, from this time forward accepted by the government at a considerable discount from its current value in the country. Bernal Diaz says that it was all

withdrawn from circulation and shipped to Castile (Hist. Verdadera, cap. 157); but his statement is not borne out by the evidence of the treasurers' records.

From 1531 onwards, then, there were only two kinds of pesos legally current in Mexico, that worth 450 maravedis, and that worth 272. The latter either by chance or by policy equalled exactly in value the "pieces of eight" which were coined in Mexico City after 1537, and which soon became the standard money of the country. The former remained an imaginary unit employed for another 150 years in transactions dealing with the bullion at the mines.

The earliest treasury records of New Granada mention three forms of gold — "oro fino," "oro bueno," and "oro bajo" (or "chafalonía"). There was no Casa de Moneda in the colony in these early years, and consequently no coinage of silver pesos. In 1559 and 1560 the audiencia complained of this state of affairs, and urged the establishment of a mint for the issue of silver and vellon (A. de I., 116, 5, 6, lib. ii, fol. 3). In 1563 the lic. Angelo de Castejou wrote that in Pamplona gold-dust was still the current medium of exchange. From the treasurers' accounts, moreover, it is clear that the amount of silver produced by the country was almost negligible. Gold must therefore have been almost the sole medium in use, and the likeliest unit of value was the peso of 450 maravedis, the one common in all parts of Spanish America before the minting of silver. And as in the later accounts, from 1547, when the colony was more settled, the receipts are almost universally reckoned in "pesos de buen oro," I have identified this particular form with the peso de minas of Mexico and Hispaniola.

"Oro fino" appears of less and less importance in the years succeeding the foundation of the "realm." It seems reasonable to suppose that this might represent treasure obtained by the Spaniards in the form of gold-dust. In the beginning gold-dust would be the handiest circulating medium; and at first it would probably be computed at its own weight and value rather than as interpreted in pesos de minas. As it would have a very high degree of fineness, it might easily be current at the value given the gold peso or castellano in Spain, 490 maravedis (the peso de oro 24 carats fine was worth 495.26 maravedis). Such, at least, is the value I have assumed for it.

The peso de minas was also carried by the conquistadores to the Pacific coasts of South America; and continued to be the general unit of value till the establishment of mints in Peru brought about a repetition of the situation in Mexico.

One more type of peso in Spanish America needs to be mentioned. Francisco de Toledo, viceroy of Peru (1569-81), issued an order that when the quinto and tribute of the Indians was paid in silver or reals, the peso was to be reckoned at 12½ reals (425 maravedis). This was later called the "peso ensayado de tributos." Philip II, by a cedula of June 29, 1592, extended the order to all the Indies. (Recop., lib. viii, tit. 8, ley 8.)